U. S. Department of Agriculture, Forest Service

FOREST PRODUCTS LABORATORY

In cooperation with the University of Wisconsin

MADISON, WISCONSIN

List of Forest Service Publications on

GLUE, PLYWOOD AND COATINGS

September, 1923

LIST OF PUBLICATIONS ON GLUE, PLYWOOD, AND COATINGS

This list includes publications that give the results of research by the Forest Products Laboratory on the development of waterproof glues, preparation and application of various glues, plywood manufacturing problems, and coatings and methods of application.

Other lists of publications dealing with the other investigative projects of the Forest Products Laboratory are obtainable on request. The activities of the various research sections of the laboratory are outlined below:

Boxing and Crating

Strength and serviceability of shipping containers, methods of packing.

Derived Products

Chemical properties and uses of wood and chemical wood products, such as turpentine, alcohol, and acetic acid.

Industrial Investigations

Methods and practices in the lumber producing and wood consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wooden products; uses for little-used species and commercial woods; and low grade and wood waste surveys.

Pathology (In cooperation with the Bureau of Plant Industry)

Fungous diseases of trees; decay, molds, and stains in timber, in buildings, and in wood products; antiseptic properties of wood preservatives.

Preservation

Preservative materials and methods of application. Durability and service records of treated and untreated wood in various forms.

Pulp and Paper

Suitability of various woods for pulp and paper; fundamental principles underlying the pulping and bleaching processes; methods of technical control of these processes; relation of the chemical and physical properties of pulps and the relation of these properties to the paper making qualities of the pulps; waste in the industry, e.g., decay in wood and pulp, utilization of bark, white water losses, etc.

Timber Mechanics

Strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

Timber Physics

Experimental and applied kiln drying, physical properties, air drying, steam bending.

Wood Technology

Identification of wood, effect on wood of turpentining and other extrinsic agencies, and structure of wood in relation to its properties.

The Forest Products Laboratory reserves the right to furnish only those publications, available for distribution, which in its judgment will furnish the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled except in unusual cases.

TECHNICAL NOTES

(Free on application to the Forest Products Laboratory)

No.	Title
D-12	Uneven coatings cause warping
F-2	The strength of commercial liquid glues
F-3	Aluminum leaf to moisture-proof wood
F-4	Water resistant glues
F-5	Scratched joints versus smooth joints in gluing
F-6	Bibliography on casein and casein glues
F-7	Some references to literature on manufacture and testing of animal glues
F-9	Foamy glue
F-10	Resistance of animal glue to moist air
F-11	Gluing veneer at high moisture contents
F-12	Effect of number of coats on the moisture resistance of spar varnish
F-16	A method of testing strength of joint glues
F-17	Gluing wood coated with varnish or shellac
F-18	Effect of age on casein glues
F-19	Setting blood albumin glue in a kiln
F-23	The analysis of casein
F-24	Moisture absorption through varnish same for different species of wood
F-25	Calculation of pressure in a hydraulic veneer press
F-26	Tests for water resistance of plywood
F-27	Comparison of moisture resistance tests for coatings
F-29	Thin plywood
F-30	Effect of casein impurities on water requirements of casein glues
F-31	Utility of low grade calcium limes in casein glues
F-32	A test of the jelly strength of glue
85	Shrinkage of veneer from boiled and steamed logs
89	Moisture content of wood is independent of density
92	When to heat wood before gluing
99	Effect of oils on strength of glues in plywood
104	Overheating reduces strength of animal glue
122	Comparison of five common types of glue
131	Properties of ordinary wood compared with plywood
132	Effect of varying the number of plies in plywood
139	Sunken joints in furniture panels
140	Stresses in laminated wood construction
142	When to machine casein glue joints
143	A rapid method of determining moisture content of wood
146	Removal of glue stains
149	Strength of screw fastenings in plywood

No.	Title
151	Cause and prevention of blue stain
157	Casein glues exceptionally durable in damp places
170	Copper salts improve casein glues
181	Moisture-resistant coatings for wood
186	Coatings that prevent end checks
193	Starved glue joints
195	Some books on paints and varnishes and wood finishing
197	Veneered and solid furniture
202	Water-resistant cold press blood albumin glue

MIMEOGRAPHED REPORTS AND REPRINTS

(Free on application to the Forest Products Laboratory)

(Please give both title and number when ordering)

No.	Title
281-2	Blood albumin glues - their manufacture, preparation and application
281-3	Casein glues - their manufacture, preparation, and application
281-4	Comparison of various types of glue
	Data on the design of plywood for aircraft. National Advisory Committee for Aeronautics Report No. 84.
475	Drying of plywood panels
	Effect of wood structure on glue penetration. By T.R. Truax, and E. Gerry.
	Glues used in airplane parts. National Advisory Committee for Aeronautics Report No. 66.
	Hygroscopicity of hide glues and the relation of tensile strength of glue to its moisture content - By E. Bateman and G.G. Towne
42	Instructions for finishing airplane propellers by the aluminum-leaf-spirit varnish process
48	Manufacture of veneer
453	Notes on the manufacture of plywood
281-6	Resistance of various coatings to moisture
506	Selection and testing of animal glue for high class joint work
	What makes glue stick - By T.R. Truax and E. Gerry.

ARTICLES IN TRADE AND TECHNICAL PRESS

Copies of these articles are not available for distribution at the Forest Products Laboratory, except certain ones which are included in the list of mimeographed reports and reprints. All of these references can be consulted in the original publications.

Title	Author	Where Published	Date
What Makes Glue Stick	Truax, T.R. & Gerry, Eloise	Scientific American	Aug.1923
Hygroscopicity of Hide Glues and the Relation of Tensile Strength of Glue to Its Moisture Content	Bateman, E. & Towne, G.G.	Indus. & Engineering Chemistry	April 1923
Effect of Wood Structure on Glue Penetration	Truax, T.R. & Gerry, Eloise	Furniture Mfr. & Artisan	April 1922
The Gluing of Wood	Truax, T.R.	The Timberman	Dec.1922
Glues Used in Airplane Parts	Allen, S.W. & Truax, T.R.	Nat.Advisory Com. for Aeronautics Report No.66	1920
Efficiency of Aluminum Leaf on Airplane Propellers.	Knauss, A.C.	Scientific American Monthly	Feb.1,1920
Data on the Design of Plywood for Aircraft	Elmendorf, Armin	Nat.Advisory Com. for Aeronautics Report No.84	1920
Water-Resistant Glues	Browne, F.L.	Chem.& Metallurgical Engineering	Aug.1,1919
Waterproofing Panels - Factors Affecting Water Resistance of Plywood	Sponsler, O.L.	Hardwood Record	Aug.1,1919

(Continued)

Title	Author	Where Published	Date
Mechanical Test Made on Plywood	Markwardt, L.J. & Elmendorf,A	Hardwood Record	July 10, 1919
Testing Glues in Water-proof Plywood		Veneers	June 1, 1919
Moisture Resistant Finishes for Airplane Woods	Dunlap,M.E.	Nat.Advisory Com. for Aeronautics Report No.85	
Testing Strength of Airplane Wing Ribs 55 to 96 inches	Elmendorf, A	Automotive Industries	July 31, 1919
Tests on Thin Plywood as a Substitute for Linen in Airplane Construction	Elmendorf,A.	Aerial Age Weekly	Sept. 1, 1919